Julie D. Jastrow

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Education

1994 Ph.D., University of Illinois at Chicago (Biological Sciences)
1979 M.S., University of Illinois, Urbana-Champaign (Agronomy)
1973 B.S., University of Illinois, Urbana-Champaign (Agricultural Science, Option in Conservation and Environmental Biology; Highest Honors)

Professional Experience

1975 - present Argonne National Laboratory
Terrestrial Ecologist (Grade 708), 2002-present
Terrestrial Ecologist (Grade 707), 1995-2002
Environmental Scientist (Grade 706), 1984-1995
Assistant Environmental Scientist, 1979-1984
Scientific Assistant, 1975-1979
1973 - 1975 Agronomy Department, University of Illinois, Urbana-Champaign Research Assistant

Current Research Interests

Plant-soil interactions; the influences of biota on soil structure; mechanisms of soil aggregate formation and stabilization; the effects of soil structure on carbon and nutrient storage and cycling; soil carbon dynamics under elevated atmospheric concentrations of CO2; restoration ecology; mechanisms controlling the mycorrhizal symbiosis and their influence on the responses of plants to a changing environment; the roles of mycorrhizae and root morphology/architecture in the structure and function of grasslands; statistical aspects of ecology.

Professional Affiliations

American Society of Agronomy
Botanical Society of America
Ecological Society of America
International Society of Soil Science
Soil Ecology Society
Soil Science Society of America

Other Professional Activities

President, Soil Ecology Society, 2004-present.
Participant, U.S. Climate Change Science Program (CCSP) Ecosystems Interagency Workshop, 2004
Adjunct Professor, Department of Geography, Northern Illinois University, 2003-present.
Member, Advisory Committee, DOE-EPSCoR University of Nebraska Carbon Sequestration Program, 2003-present.
Member, DOE Global Change Education Program Review Panel, 2003-2004.
Chief Scientist (one of three), DOE Consortium for Enhancing Carbon Sequestration in Terrestrial

Ecosystems (CSiTE), 2002-present.
President-Elect, Soil Ecology Society, 2002-2003.
Member, National Technical Advisory Committee, DOE National Institute for Global Environmental Change, 2000-present
Participant, USDA/ARS Global Change National Program Workshop, Denver, Colorado, 1999.
Chair, Nominations Committee, Soil Ecology Society, 1999.
Occasional Reviewer, Soil Biology & Biochemistry, Elsevier Science, 1999-present.
Consulting Editor, Plant and Soil, Kluwer Academic Publishers, 1998-2003.
Member, Local Organizing Committee, Soil Ecology Society International Conference, 1998-1999.
Co-organizer, Symposium on Carbon Sequestration by Soils for the Annual Meeting of the Soil Science Society of America, 1998.
Member, Program Review Committee for USDA/ARS National Soil Tilth Laboratory, 1998.
Member, Soil and Vegetation Focus Group, DOE Carbon Sequestration Road Map Initiative, 1998.
Consultant, The Field Museum of Natural History Underground Adventure Exhibit, 1997-1998.
Panel Member, Joint Interagency (NSF, DOE, USDA, NASA, EPA) Special Competition on Terrestrial Ecology and Global Change, 1997.
Member, Argonne Land Management and Habitat Restoration Committee, 1996-present.
Member, DOE Terrestrial Carbon Processes Science Team, 1995-present.
Member, Chicago Wilderness Science Team, 1995-present.
Member, Student Awards Committee, Soil Ecology Society, 1995.
Member, Fermilab Ecological Land Management Committee, 1995-present.
Member, Environmental Research Division Seminar Committee, 1995-present.
Member, Directors Review Committee for Individual Investigator Laboratory Directed Research and Development Program at Argonne National Laboratory, 1994-1996.
Mentor, NSF-sponsored Research Immersion Project for junior high school teachers, Argonne National Laboratory, 1994.
Member, Panel on Standards for Prairie Restoration, Society for Ecological Restoration, 1990.
Member, Environmental Research Division Personnel Committee, 1989-present.
Member, Fermilab Prairie Committee, 1985-1995.

Educational Mentoring Activities

Advisor, Roser Matamala, Postdoctoral Appointee 2000-2002, Argonne National Laboratory.
Advisor, Peggy Schultz, Postdoctoral Appointee 1996-1998, Argonne National Laboratory.
Co-Advisor, Sarah O'Brien, Graduate Student, University of Illinois at Chicago.
Committee Member, Diana Lane, Ph.D. Candidate 1999-2002, University of Illinois at Chicago.
Committee Member, Michelle Simone, M.S. Student 1997-1999, Illinois State University.
DOE Global Change Education Program Mentor, Steven Allison, Ph.D. Candidate 2002-present, Stanford University.
DOE Global Change Education Program Mentor, Julia Liao, Ph.D. Candidate 2001-present, Texas A&M University.

Refereed Publications

Post, W.M., R.C. Izaurralde, J.D. Jastrow, B.A. McCarl, J.E. Amonette, V.L. Bailey, P.M. Jardine, and J. Zhou. Enhancement of carbon sequestration in U.S. soils. BioScience (in press).

Matamala, R., M.A. Gonzalez-Meler, J.D. Jastrow, R.J. Norby and W.H. Schlesinger. 2004. Response to comment on Impacts of fine root turnover on forest npp and soil c sequestration potential. Science 304:1745.

Bever, J.D., P.A. Schultz, R.M. Miller, L. Gades and J.D. Jastrow. 2003. Inoculation with prairie mycorrhizal fungi may improve restoration of native prairie plant diversity. Ecological Restoration 21:311-312.

Matamala, R., M.A. Gonzalez-Meler, J.D. Jastrow, R.J. Norby and W.H. Schlesinger. 2003. Impacts of fine root turnover on forest NPP and soil C sequestration potential. Science 302:1385-1387.

Miller, R.M., S.P Miller, J.D. Jastrow, and C.B. Rivetta. 2002. Mycorrhizal mediated feedbacks influence net carbon gain and nutrient uptake in Andropogon gerardii. New Phytologist 155:149-162.

Six, J. and J.D. Jastrow. 2002. Organic matter turnover, pp.936-942. In R. Lal (ed.), Encyclopedia of Soil Science. Marcel Dekker, New York. (also published online at www.dekker.com)

Schultz, P.A., R.M. Miller, C.B. Rivetta, J.D. Jastrow, and J.D. Bever. 2001. Evidence of a mycorrhizal mechanism for the adaptation of Andropogon gerardii to high and low-nutrient prairies. American Journal of Botany 88:1650-1656.

Jastrow, J.D., R.M. Miller, and C.E. Owensby. 2000. Long-term effects of elevated atmospheric CO2 on below-ground biomass and transformations to soil organic matter in grassland. Plant and Soil 224:85-97.

Miller, R.M. and J.D. Jastrow. 2000. Mycorrhizal fungi influence soil structure, pp. 3-18. In Y. Kapulnik and D.D. Douds, Jr. (eds.), Arbuscular Mycorrhizas: Physiology and Function. Kluwer Academic Publishers, Dordrecht, The Netherlands.

Kemner, K.M., W. Yun, Z. Cai, B. Lai, H.-R. Lee, J. Maser, D.G. Legnini, W. Rodrigues, J.D. Jastrow, R.M. Miller, S.T. Pratt, M.A. Schneegurt, and C.F. Kolpa Jr. 1999. Using zone plates for X-ray microimaging and microspectroscopy in environmental science. Journal of Synchrotron Radiation 6:639-641.

Miller, R.M., C.I. Smith, J.D. Jastrow, and J.D. Bever. 1999. Mycorrhizal status of the genus Carex (Cyperaceae). American Journal of Botany 86:547-553.

Six, J., P.A. Schultz, J.D. Jastrow, and R. Merckx. 1999. Recycling of sodium polytungstate used in soil organic matter studies. Soil Biology and Biochemistry 31:1193-1196.

Jastrow, J.D., and R.M. Miller. 1998. Soil aggregate stabilization and carbon sequestration: Feedbacks through organomineral associations, pp. 207-223. In R. Lal, J.M. Kimble, R.F. Follett, and B.A. Stewart (eds.), Soil Processes and the Carbon Cycle. CRC Press LLC, Boca Raton, FL.

Jastrow, J.D., R.M. Miller, and J. Lussenhop. 1998. Contributions of interacting biological mechanisms to soil aggregate stabilization in restored prairie. Soil Biology and Biochemistry 30:905-916.

Miller, R.M., and J.D. Jastrow. 1996. Contributions of legumes to the formation and maintenance of soil structure. pp. 105-112. In D. Younie (ed.), Legumes in Sustainable Farming Systems. Occasional Symposium No. 30, British Grassland Society, Reading, UK.

Jastrow, J.D. 1996. Soil aggregate formation and the accrual of particulate and mineral-associated organic matter. Soil Biology and Biochemistry 28:665-676.

Jastrow, J.D., T.W. Boutton, and R.M. Miller. 1996. Carbon dynamics of aggregate-associated organic matter estimated by carbon-13 natural abundance. Soil Science Society of America Journal 60:801-807.

McConnell, J.W., Jr., R.D. Rogers, T.M. Sullivan, J.D. Jastrow, D.S. Hicks, and R.R. Brey. 1996. Lysimeter data as input to performance assessment models, pp. 706-723. In T.M. Gilliam and C.C. Wiles (eds.), Stabilization and Solidification of Hazardous, Radioactive, and Mixed Wastes, 3rd Volume, ASTM STP 1240. American Society for Testing and Materials, West Conshohocken, Pennsylvania.

Miller, R.M., D.R. Reinhardt, and J.D. Jastrow. 1995. External hyphal production of vesicular-arbuscular mycorrhizal fungi in pasture and tallgrass prairie communities. Oecologia 103:17-23.

Brey, R.R., J.W. McConnell, R.D. Rogers, T.M. Sullivan, and J.D. Jastrow. 1994. A preliminary investigation of the existence of radiocolloids in leachate from the NRC field lysimeter investigations. Waste Management 14:581-588.

Miller, R.M., and J.D. Jastrow. 1994. Vesicular-arbuscular mycorrhizae and biogeochemical cycling, pp. 189-212. In F.L. Pfleger and R.G. Linderman (eds.), Mycorrhizae and Plant Health. APS Press, The American Phytopathology Society, St. Paul, Minnesota.

Jastrow, J.D., and R.M. Miller. 1993. Neighbor influences on root morphology and mycorrhizal fungus colonization in tallgrass prairie plants. Ecology 74:561-569.

Rogers, R.D., J.W. McConnell, Jr., T.M. Sullivan, J.D. Jastrow, and D.S. Hicks. 1993. Field testing of waste forms using lysimeters: Results after seven years, pp. 459-465. In M. Arnould, M. Barr?, and B. C?e (eds.), Geology and Confinement of Toxic Wastes. A.A. Balkema, Rotterdam.

McConnell, J.W., Jr., R.D. Rogers, J.D. Jastrow, and D.S. Wickliff. 1992. Results of field testing of radioactive waste forms using lysimeters, pp. 1455-1462. In Proceedings of Spectrum '92: Nuclear and Hazardous Waste Management International Topical Meeting, Boise, Idaho, 23-27 August 1992. American Nuclear Society.

Miller, R.M., and J.D. Jastrow. 1992. The application of va mycorrhizae to ecosystem restoration and reclamation, pp. 438-467. In M.F. Allen (ed.), Mycorrhizal Functioning: An Integrative Plant-Fungal Process. Chapman and Hall, New York.

Miller, R.M., and J.D. Jastrow. 1992. Extraradical hyphal development of vesicular-arbuscular mycorrhizal fungi in a chronosequence of prairie restorations, pp. 171-176. In D.J. Read, D.H. Lewis, A.H. Fitter, and I.J. Alexander (eds.), Mycorrhizas in Ecosystems. CAB International, Cambridge, United Kingdom.

Miller, R.M., and J.D. Jastrow. 1992. The role of mycorrhizal fungi in soil conservation, pp. 29-44. In G.J. Bethlenfalvay and R.G. Linderman (eds.), Mycorrhizae in Sustainable Agriculture. ASA Special Publication No. 54, American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Madison, Wisconsin.

Rogers, R.D., J.W. McConnell, Jr., J.D. Jastrow, and D.S. Wickliff. 1992. Contributions of lysimeter data to the development of site specific performance assessment plans, pp. 448-465. In T.M. Gilliam and C.C. Wiles (eds.), Stabilization and Solidification of Hazardous, Radioactive, and Mixed Wastes, 2nd Volume. American Society for Testing and Materials, Philadelphia, Pennsylvania.

Jastrow, J.D., and R.M. Miller. 1991. Methods for assessing the effects of biota on soil structure. Agriculture, Ecosystems and Environment 34:279-303.

Jastrow, J.D., and R.M. Miller. 1991. Methods for assessing the effects of biota on soil structure, pp. 279-303. In D.A. Crossley, Jr., D.C. Coleman, P.F. Hendrix, W. Cheng, D.H. Wright, M.H. Beare,

and C.A. Edwards (eds.), Modern Techniques in Soil Ecology. Elsevier Science Publishers, Amsterdam.

Rogers, R.D., J.W. McConnell, Jr., J.D. Jastrow, and D.S. Wickliff. 1991. Results of field testing of waste forms using lysimeters, pp. 85-91. In Proceedings of the 1991 Joint International Waste Management Conference, Volume 1: Low and Intermediate Level Radioactive Waste Management, Seoul, Korea, 21-26 October 1991. American Society of Mechanical Engineers.

Miller, R.M., and J.D. Jastrow. 1990. Hierarchy of root and mycorrhizal fungal interactions with soil aggregation. Soil Biology and Biochemistry 22:579-584.

Wesely, M.L., D.L. Sisterson, and J.D. Jastrow. 1990. Observations of the chemical properties of dew on vegetation that affect the dry deposition of SO2. Journal of Geophysical Research 95:7501-7514.

Cook, B.D., J.D. Jastrow, and R.M. Miller. 1988. Root and mycorrhizal endophyte development in a chronosequence of restored tallgrass prairie. New Phytologist 110:355-362.

Jastrow, J.D. 1987. Changes in soil aggregation associated with tallgrass prairie restoration. American Journal of Botany 74:1656-1664.

Jastrow, J.D., R.M. Miller, S.C. Rabatin, and R.R. Hinchman. 1984. Revegetation of disturbed lands in arid ecosystems, pp. 2-1 through 2-36. In A.J. Dvorak (ed.), Ecological Studies of Disturbed Landscapes. DOE/NBM-5009372, U.S. Department of Energy.

Jastrow, J.D., et al. 1984. Amelioration of acidic waste materials resulting from energy mineral extraction, pp. 4-1 through 4-67. In A.J. Dvorak (ed.), Ecological Studies of Disturbed Landscapes. DOE/NBM-5009372, U.S. Department of Energy.

Jastrow, J.D., C.A. Zimmerman, A.J. Dvorak, and R.R. Hinchman. 1981. Plant growth and trace-element uptake on acidic coal refuse amended with lime or fly ash. Journal of Environmental Quality 10:154-160.

Jastrow, J.D., and D.E. Koeppe. 1980. Uptake and effects of cadmium in higher plants, pp. 607-638. In J.O. Nriagu (ed.), Cadmium in the Environment, Part I. John Wiley and Sons, New York.

Invited Presentations and Seminars

Jastrow, J.D. Mean residence time of soil carbon pools: controlling factors and implications for soil carbon cycling. Symposium on Respiratory Control of the Global C Cycle in a Changing Environment. 88th Annual Meeting of the Ecological Society of America, Savannah, Georgia. 6 August 2003.

Jacobs, G.K., W.M. Post, J.D. Jastrow, and R.C. Izaurralde. Carbon sequestration in terrestrial ecosystems. Spring Meeting of the American Geophysical Union, Washington Convention Center, Washington, DC. 28 May 2002.

Jastrow, J.D. Aggregate protection and the storage of carbon in grassland soils: Dynamics and mechanisms. 11th Annual Kling Anderson Range Science Lecture, Department of Agronomy, Kansas State University, Manhattan, Kansas. 24 April 2002.

Jastrow, J.D. Prairie restoration below ground: rebuilding soil structure and organic matter. Department of Geography Spring Colloquium Series, Northern Illinois University, DeKalb, Illinois. 22 February 2002.

Jastrow, J.D. Prairie restoration below ground: rebuilding soil structure and organic matter. The Morton Arboretum Winter Research Seminar Series "Look Out Below!", Lisle, Illinois. 21 February 2002.

Miller, R.M. and Jastrow J.D. Arbuscular mycorrhizal fungi influence soil structure. Third International Conference on Mycorrhizas, Diversity and Integration in Mycorrhizas, Adelaide Convention Centre, Adelaide, Australia. 12 July 2001.

Jastrow, J.D. Reducing atmospheric carbon dioxide through terrestrial sequestration. Eco-Informa 2001: Environmental Risks and the Global Community, Strategies for Meeting the Challenges, Argonne National Laboratory, Argonne, Illinois. 16 May 2001.

Jastrow, J.D. Accrual of soil organic carbon following restoration of perennial grassland on previously cultivated soils. Symposium on The Science of Carbon Sequestration. 2000 Fall Meeting of the American Geophysical Union, San Francisco, California. 18 December 2000.

Jastrow, J.D., and R.M. Miller. Soil aggregation in the rhizosphere: optimal conditions for multiple mechanisms. Symposium on the Rhizosphere: Top-Down and Bottom-Up Approaches. The Ecological Society of America 85th Annual Meeting, Snowbird, Utah. 8 August 2000.

Miller, R.M., and J.D. Jastrow. Mycorrhizal fungi contribute to soil aggregation. Mycorhizes 2000, Quebec Mycorrhiza Group, Rivi?e-du-Loup, Quebec. 1-3 June 2000.

Jastrow, J.D. Carbon and nitrogen accrual in prairie soil organic matter fractions under elevated atmospheric CO2. GCTE/COST Workshop on Litter Quality and Decomposition Under Elevated Atmospheric CO2, Capri, Italy. 26 September 1998.

Jastrow, J.D. Soil aggregation processes in arid ecosystems. Keynote Presentation, International Workshop on Soil Aggregation in Arid Lands: Processes, Measurement, and Application, USDA/ARS Jornada Experimental Range, Las Cruces, New Mexico. 8 May 1997.

Jastrow, J.D. Mycorrhizae and the restoration of soil structure. The Role of Mycorrhizal Fungi in Restoration Ecology, The First Janet Meakin Poor Research Symposium, Chicago Botanic Garden, Glencoe, Illinois. 22 October 1996.

Jastrow, J.D. Contributions of mycorrhizae to the development of soil aggregate hierarchy. First International Conference on Mycorrhizae, University of California, Berkeley. 5 August 1996.

Jastrow, J.D., and R.M. Miller. Soil aggregate stabilization and carbon sequestration: feedbacks through organo-mineral associations. International Symposium on Carbon Sequestration in Soil, The Ohio State University, Columbus. 23 July 1996.

Jastrow, J.D. The dynamics and functioning of mycorrhizae in restored tallgrass prairie. Departments of Forestry, Plant Biology, and Ecology, Ethology, and Evolution Joint Seminar, University of Illinois, Urbana-Champaign. 19 October 1994.

Jastrow, J.D. Control mechanisms of carbon turnover and accrual in soils. Environmental Research Division Seminar, Argonne National Laboratory. 19 April 1994.

Jastrow, J.D. Soil biotic activity, soil structure, and carbon storage: What's going on down there? Ecology and Evolution Seminar Series, Department of Biological Sciences, University of Illinois at Chicago. 5 April 1994.

Jastrow, J.D. Prairie restoration and potential research opportunities. Pi Alpha Xi Awards Banquet, Department of Horticulture, Purdue University, West Lafayette, Indiana. 22 March 1994.

Jastrow, J.D. Methods for characterizing vegetation and soil structure. Junior High School Teacher's Science and Math Summer Institute, Division of Educational Programs, Argonne National Laboratory. 20-21 July 1992.

Miller, R.M., and J.D. Jastrow. The role of mycorrhizae in soil conservation. 55th Annual Meeting of the Soil Science Society of America, Denver, Colorado. 31 October 1991.

Jastrow, J.D. Biological influences on soil structure. Ecology and Evolution Seminar Series, Department of Biological Sciences, University of Illinois at Chicago. 14 May 1991.

Jastrow, J.D. Prairie soils and fungi. Teacher's Working Group for Curriculum Development, Fermilab Particles and Prairies Project, Fermilab, Batavia, Illinois, Sponsored by the Chicago Science Explorers Program. 13 April 1991.

Jastrow, J.D. There's more to prairie restoration than meets the eye: Take a look belowground! Tenth Northern Illinois Prairie Workshop, Northern Illinois University, DeKalb. 2 March 1991.

Jastrow, J.D., and R.M. Miller. Interrelationships between root morphology and va mycorrhizal fungi in temperate grassland communities. Eighth North American Conference on Mycorrhizae, University of Wyoming, Jackson. 8 September 1990.

Miller, R.M., and J.D. Jastrow. The role of the extraradical hyphal phase of mycorrhizal fungi to sustainable ecosystems. Eighth North American Conference on Mycorrhizae, University of Wyoming, Jackson. 8 September 1990.

Jastrow, J.D. Prairie soils. Science and Technology for the Nineties, Argonne Community of Teachers Workshop, Argonne National Laboratory. 26 April 1990.

Jastrow, J.D. Biological influences on soil structure. Seminar at Savannah River Ecology Laboratory, Aiken, South Carolina. 22 March 1990.

Jastrow, J.D., and R.M. Miller. Biological influences on soil structure. DOE/OHER Program Director's Meeting, Argonne National Laboratory. 9 November 1989.

Miller, R.M., and J.D. Jastrow. The effects of biota on soil structure. International Workshop on Modern Techniques in Soil Ecology, University of Georgia, Athens. 13 September 1989.

Jastrow, J.D. Biological influences on soil aggregation in a chronosequence of restored tallgrass prairie. Ecology and Evolution Seminar Series, Department of Biological Sciences, University of Illinois at Chicago. 17 January 1989.

Jastrow, J.D. Biological influences on soil structure in restored tallgrass prairie. Biological Sciences Department Seminar, Illinois State University, Normal. 8 December 1988.

Jastrow, J.D. DOE-funded reclamation research (1975-1981). Reclamation Technology Committee Seminar, American Mining Congress, Washington, DC. 4 February 1986.

Jastrow, J.D. Revegetation of acidic coal mine refuse. Thirteenth Argonne Universities Association Biology Symposium: Biological Aspects of Ecosystem Restoration. 22 April 1980.